

**THE USE OF THE INTEGRATED EMERGENCY MANAGEMENT SYSTEM
IN EMERGENCY OPERATIONS CENTER ACTIVITIES**

**EXECUTIVE ANALYSIS OF FIRE SERVICE OPERATIONS
IN EMERGENCY MANAGEMENT**

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ABSTRACT

The problem was that the lack of the use of a formal Integrated Emergency Management System for Emergency Operations Center activations in Westchester County New York often creates confusion among decision makers.

The purpose of this applied research paper was to identify and justify the use of a formal Integrated Emergency Management System to be used and then select training courses and develop a schedule to train key responders to the Westchester County Emergency Operations Center during activation. Identifying the components and phases of an Integrated Emergency Management System, examining the importance and advantages of using such a system for Emergency Operations Center activations then developing a formal plan to implement and educate key responders to this system would accomplish the purpose of this Applied Research Paper. Action research methods were employed to answer the following research questions:

1. What are the key components and phases that make up an Integrated Emergency Management System?
2. What is the importance and advantages of using an Integrated Emergency Management System in Emergency Operation Center activations?
3. What are some training programs and their importance for responders to Emergency Operations Centers in an Integrated Emergency Management System?

The procedures used to complete this research project were to first perform an extensive review of current literature sources to explain the key components and phases that make up an Integrated Emergency Management System and to explore the importance and advantages of implementing such a system. Then, once the first phase was completed, training programs were identified and their importance explained in addressing the purpose of the Applied Research

Paper. From the identification of training opportunities a schedule of courses and a proper training curriculum was designed to educate Emergency Operations Center responders.

The results of this research showed the importance and advantages of implementing an Integrated Emergency Management System during Emergency Operations Center activities in Westchester County. Key components of an Integrated Emergency Management System and the necessary phases of Emergency Management were identified to form a basis for this system's implementation. Finally, training opportunities and their importance were identified.

Recommendations were made to have Westchester County adopt the formal Integrated Emergency Management System for use in Emergency Management and Emergency Operations Center operations. A plan was also presented for the training of key responders to the Westchester County Emergency Operations Center in the application and use of an Integrated Emergency Management System.

TABLE OF CONTENTS

ABSTRACT	2
TABLE OF CONTENTS	4
INTRODUCTION	5
BACKGROUND AND SIGNIFICANCE	5
LITERATURE REVIEW	9
PROCEDURES	19
RESULTS	22
DISCUSSION	25
RECOMMENDATIONS	32
REFERENCES	34
APPENDIX A (Course of Study and Training Schedule)	36
APPENDIX B (Training Resources)	37

INTRODUCTION

The problem is that the lack of the use of a formal Integrated Emergency Management System for Emergency Operations Center activations in Westchester County New York often creates confusion among decision makers.

The purpose of this applied research paper is to identify and justify the use of a formal Integrated Emergency Management System to be used and then select training courses and develop a schedule to train key responders to the Westchester County Emergency Operations Center during activation. Identifying the components and phases of an Integrated Emergency Management System, examining the importance and advantages of using such a system for Emergency Operations Center activations then developing a formal plan to implement and educate key responders to this system will accomplish the purpose of this Applied Research Paper. Action research methods will be employed to answer the following research questions:

1. What are the key components and phases that make up an Integrated Emergency Management System?
2. What is the importance and advantages of using an Integrated Emergency Management System in Emergency Operation Center activations?
3. What are some training programs and their importance for responders to Emergency Operations Centers in an Integrated Emergency Management System?

BACKGROUND AND SIGNIFICANCE

Westchester County New York is one of sixty-two counties in the state. New York City and the Long Island Sound share its southern border, Connecticut its eastern border, the Hudson River is the border to the west and Putnam County is the neighbor to the north. Westchester

County has 450 square miles of landmass with a population of 924,000 according to the 2000 census (Westchester, 2001).

The physical location of Westchester County lends itself to many natural disasters that challenge local responders. The Hudson River is its western border and the Long Island Sound borders Westchester to the south making this area prime for natural flooding conditions from coastal storms and hurricanes such as Floyd in 1999. Being located in the northeast, snow and ice storms are prevalent in the winter months which have caused many challenges for local governments and emergency services in responding to these events. Finally, there is a little known earthquake fault line that runs through this part of New York that can affect some twenty million residents at any time.

Westchester is not lacking for manmade disasters that challenge, on a daily basis, emergency responders. There are two nuclear power plants, Indian Point 2 & 3, in the county, three major passenger rail lines that carry hundreds of thousands of commuters to and from New York City daily, Westchester Airport, one of the largest corporate airport in the country, and large volumes of barge and ship traffic on the Hudson River. Then there is New York City and all of the problems that it presents in the light of the events of September 11, 2001 for responders who would need to respond, through mutual aid requests, in the event of another large-scale disaster.

These manmade and natural disasters are common throughout the country but very few areas have the population of the New York metropolitan area. Add to this the fact that New York is a “home rule” state where counties are comprised of numerous local forms of government all responsible for governing and protecting their municipality and you can see where a coordinated

Emergency Operations Center operation, on the county level, is a vital resource in assisting local municipalities during large-scale disasters.

Herein lies the problem, small local municipalities can exhaust resources to handle emergencies from large-scale natural and manmade event and require the County to coordinate a unified response. However, Westchester County is still coming to grips with its new role in Emergency Management. In January of 2000 Westchester County created the Department of Emergency Services and in it the Office of Emergency Management. This formal recognition of Emergency Management was not an easy transition from the days of Civil Defense and the “management by crisis” reactive theory of running an Emergency Operations Center. Civil Defense, in the past in Westchester County New York, was comprised of personnel not schooled in dealing with emergencies but were, for the most part, political appointees who dealt with each crisis as it came and did little pre-planning for emergencies. However, as the importance of managing emergencies changed so too was it necessary to rethink how managers are selected to handle there emergencies. Today’s emergency managers in Westchester are familiar with the Integrated Emergency Management System concept. However, the responders to the Emergency Operations Center who staff various positions are not and need to be trained in its use and their role in the big picture. The use of an Integrated Emergency Management System allows Emergency Operations Center operations to be proactive and better prepared to handle all types of emergencies.

The significance of this study to the emergency management of large scale events in Westchester County is threefold. First, the study will identify the components of an Integrated Emergency Management System and recognize this system for running Emergency Operations Center operations during emergencies. This emergency management system is time tested and

proven to be a valuable tool for Emergency Operations Center operation management. Next, the importance and advantages of using an Integrated Emergency Management System will be explained in detail. Finally, it will identify necessary training courses and curriculums required to understand and use an Integrated Emergency Management System and layout a training schedule to bring all identified key responders to the Emergency Operation Center up to speed in handling emergencies in Emergency Operations Center activation.

This research is the starting point for future research on incident management as it assists Emergency Operations Center operations. Once these basic roles and responsibilities in an Integrated Emergency Management System are understood and become second nature to the key Emergency Operations Center responders then and only then can the system be expanded upon and improved. Emergency Operation Center responders will be given added responsibilities and more advanced training can be undertaken as it is identified in the future.

Research completed in this paper directly relates to the course material covered in the Executive Analysis of Fire Service Operation in Emergency Management course of the Executive Fire Officer Program at the National Fire Academy. The Applied Research Project is written to complete the research component of that course. Emergency Operations Center operations were specifically studied in Modules 3 and 9 of the course work and hazard and capability assessments discussed in chapters 4, 5, 6, and 8 of the Student Manual (FEMA, 2002). However, the entire course dealt with the coordination needed between incident command in the field and Emergency Operations Center operations and how one compliments the other. It was also seen throughout the role playing, hands-on scenarios in the coursework. For the successful outcome of a large-scale incident to occur a formal incident management system needs to be in

place, understood and used by all key personnel in the field as well as in the Emergency Operations Center.

Research undertaken in this paper has a direct relationship to the current United States Fire Administration 5-year Operational Objectives. Lives can and will be saved if Emergency Operations Center operations run smoothly and properly support field operations. For sustained operations to be successful much behind the scenes work must be accomplished in support of field responders. The use of an Integrated Emergency Management System will make this possible. Also, part of an Integrated Emergency Management System is the planning for emergencies through a comprehensive multi-hazard risk reduction plan. This planning function must and will include the knowledge and expertise of the Fire Service who are today's first line of defense in the war on homeland security.

LITERATURE REVIEW

A review of various literature sources including magazine articles, professional journals, books and the Internet is conducted. These sources are the basis for answering the following research questions: (a) what are the key components and phases that make up an Integrated Emergency Management System, (b) what is the importance and advantages of using an Integrated Emergency Management System in Emergency Operation Center activations, (c) what are some training programs and their importance for responders to Emergency Operations Centers in an Integrated Emergency Management System.

Through this literature review the components and phases of an Integrated Emergency Management System are explained as well as the importance and advantages of using such a recognized emergency management system. The review also identifies appropriate training opportunities to be presented to key Emergency Operation Center decision makers.

Components and Phases That Make-up an Integrated Emergency Management System

The components of an Integrated Emergency Management System emphasize capability development and are divided into two sections; current capabilities and activities and capability improvements (Walter & Buck, 1996). Walter and Buck (1996) state that there are thirteen processes that comprise the Integrated Emergency Management System. Components of this process are also found in the course of study in the Executive Analysis of Fire Service Operations in Emergency Management curriculum taught at the National Fire Academy (FEMA, 2002). The first seven processes focus on current capabilities and they are as follows:

Hazard Analysis – Step 1 includes identifying the major emergencies or disasters that could occur in a community, calculating the likelihood of an occurrence and anticipating the magnitude of the problem and impact on people, property, and the environment.

Capability Assessment – Step 2 requires communities to assess their current capabilities for dealing with all the identified hazards.

Emergency Operation Planning – Step 3 is where an overall response plan is developed in this step with annexes for each specific hazardous events identified in step one.

Capability Maintenance - Step 4 lays out the processes to monitor the ability to take appropriate and effective action against any hazard must be monitored continually. Plans need to be reviewed, equipment serviced and tested, personnel training updated, and procedures exercised on a regular basis.

Mitigation Efforts – Step 5 identifies resources need to be appropriated to eliminate or reduce the effects of hazards therefore minimizing large loss and suffering in the future.

Emergency Operations – Step 6 is where the need to carry out current plans with current resources may arise at any time providing an opportunity to test existing capabilities and make future changes to existing plans.

Evaluation – Step 7 is where Emergency Operations are analyzed in terms of actual versus required capabilities and are used to make updates to planning issues.

The final six steps are used to emphasize capability improvements and are as follows:

Capability Shortfalls – Step 8 allows for current capabilities that were identified in step two to be examined against optimum capabilities with those areas not meeting current capability criteria receiving consideration in a multi-year plan described in step nine.

Multi-Year Development Plan – Step 9 provides future planning steps to look at shortfalls and is tailored to address the needs of the community and meet the desired level of capability for handling emergencies.

Annual Development Increment – Step 10 uses the multi-year plan as a template, details of what are to be accomplished in the following year are laid out. Needs change and this step reviews the five-year plan yearly and lets the community know what the improvement priorities for the coming year and the financial impact to the community to accomplish them.

State and Local Resources – Step 11 identifies resources that are needed outside the community's ability to provide, but are required.

Federal Resources – Step 12 reinforces that the United States government continues to support and assist in developing capability at the local level and will assist financially when local and state resources are depleted. These resources are identified in this step.

Annual Work Increment – Step 13 is where all changes and improvements to response and capability planning in each step are recorded and consolidated on the state level.

The components or processes described above provide the tools needed to handle the four phases of Emergency Management through its thorough assessment and plan implementation process; Mitigation, Preparation, Response, and Recovery (Meyer, 1997). *Mitigation* is the first step and is the action that can prevent, alleviate or diminish the potential effect of a disaster according to Chief Steve Meyer (1997). He goes on to say that this is the most cost-effective way to deal with disasters because if you can understand the severity of the incident prior to its happening and reduce the chance or eliminate it from occurring you can save everyone from the pain associated with the disaster. These ideas are echoed by Shawn Adams (2002) when he states that mitigation is similar to any risk management program but its efforts are focused specifically on preventing or minimizing the loss of catastrophic events. FEMA concurs with these definitions by describing mitigation efforts as “those which try to eliminate or reduce the impact of a hazard, such as the traditional lightning rod” (Adams, 2002, p.25).

Preparation is the second of the four phases of Emergency Management. According to Chief Steve Myers (1997, p. 54), “being prepared is the backbone of any and all successfully managed disasters. Preparation is not just being trained well and having the equipment to deal with the situation. It is being able to reduce the threat or severity of the hazard”. Identifying risks and, after mitigating them, starting to prepare for the unthinkable is how Shawn Adams (2002) describes this phase of Emergency Management. Shawn uses the example of the World Trade Center event and how companies are looking at the redeployment of key employees so the entire management team is not lost during one catastrophic event.

The third phase, *Response*, is defined as the actions that provide assistance to the injured, reduce the probability of secondary damage and speed recovery operations. When a crisis occurs, the preparation phase ends and this is where all plans are put into place (Adams, 2002).

The final phase is *Recovery*. In this phase the major focus is not on cost as in the Mitigation and Preparation phases but like in the Response phase there will be an underlying wish that more had been done to prepare (Adams, 2002).

“Like a chain, the Integrated Emergency Management System is only as strong as its weakest link” (Meyer, 1997, p.54). The system will not perform as expected when needed if one phase is not completed appropriately or steps are skipped according to Chief Myer (1997).

The literature research in this section described to the researcher the specific parts that make up an Integrated Emergency Management System. This understanding sets the tone for the findings in the following section for without understanding how an Integrated Emergency Management System works it is impossible to express upon the readers of this project the importance and advantages of implementing such a system in Westchester County as a basis for handling Emergency Operations Center operations.

Importance and Advantages of an Integrated Emergency Management System to Emergency Operations Center Operations

Importance

The complexity of incident management in today’s emergency response atmosphere, coupled with the growing need for multi-agency and multi-functional involvement on incidents, has increased the need for a single standard for managing incidents (NYSEMO, 2002). Using a “system” is the key to effective risk management. The Incident Command/Management System is just that, a system that allows one to manage the risk with a little more style and a lot more accountability (Terwilliger, 2002). Many past attempts at disaster planning and mitigation have failed because the numerous groups or agencies involved had incomplete or unrealistic goals. These agencies made little attempt or effort to work together for effective planning or successful

incident outcome. This type of multi-agency coordination is not a familiar concept to all private health and welfare agencies and municipal emergency organizations (McCormick, 1997).

However, in any major event many local, state and federal agencies will need to come together. The challenge now is to get these agencies to cooperate and work together in the most efficient and effective manner to bring about a successful outcome (NYSEMO, 2002).

More and more emphasis has been placed on the unified command concept by the federal government in the wake of the terrorist events of September 11, 2001 (Chiaramonte, 2002). The use of an Integrated Emergency Management System is the first step towards working together to protect emergency responders and the communities they protect (Walter & Buck, 1996). Using an Integrated Emergency Management System is important for a number of reasons. First, it is designed to develop and maintain credible emergency management capability nationwide by integrating activities along functional lines at all levels of government and across all hazards where possible (Meyer, 1997). This Integrated Emergency Management System is a “management philosophy that advocates the use of a comprehensive emergency management plan involving all agencies and organizations at all levels of government” (Walter & Buck, 1996, p.24). An Integrated Emergency Management System is a process that is logical and applicable to all jurisdictions regardless of their size, level of sophistication, potential hazards, or current capabilities (Walter & Buck, 1996). Another important feature of using an Integrated Emergency Management System in Emergency Operation Center activities is its ability to handle all types of information. Information, the ability to process it, the relationships in a multi-person communication network, and the authority to structure, control, and regulate information across an emergency command affects the total effectiveness of the entire response system (Wybo & Kowalski, 1998). Finally, an Integrated Emergency Management System is a realistic way to

conduct needs assessments and form program plans for all types of hazards. This system assists with joint community-wide planning, helps eliminate the duplication of efforts and makes it possible for the upgrading of capabilities for the handling of emergencies (McCormick, 1997).

Advantages

There are many advantages of adopting the Integrated Emergency Management System for use in Emergency Operation Center activations in Westchester County, New York. First, the Integrated Emergency Management System is a tool for managing an emergency that can prevent injuries, reduce property damage, and save lives within a community (Walter & Buck, 1996). This is accomplished due to the fact that by using the Integrated Emergency Management System much of the actual management system is worked out and in place prior to an incident that requires activation of an Emergency Operation Center (Meyer, 1997). Community planners can combine the Integrated Emergency Management System concept with disaster planning to predict disaster effects and develop proper responses that can be handled through this system in an Emergency Operation Center (McCormick, 1997). The Integrated Emergency Management System, once in place, provides a means of effectively incorporating resources from both private and public agencies needed to mitigate the incident (Walter & Buck, 1996). This interagency cooperation is the only way to deal with all types of disasters (Chiaromonte, 2002).

Once the principals of the Integrated Emergency Management System are adopted and fully understood additional advantages of adopting this system are that it unifies command, uses common terminology that is understood by all participants and responders, limits the span of control within functional areas by its shear composition, and provides organizational flexibility while incorporating a high level of accountability among managers within the system (NYSEMO, 2002). This structured system also allows for organization and control of large

numbers of responders from many agencies and jurisdictions (Meyer, 1997). The use of the Integrated Emergency Management System addresses one of the key operational problems in Emergency Management, the lack of or inadequate communications. Knowing each of the roles and responsibilities of Emergency Operation Center players allows decision makers to freely communicate needs and concerns (Wybo & Kowalski, 1998).

This system is also cost effective since it is a public domain system that can be used freely and does not require time and effort to create (Coast Guard, 2002). Being a public domain system a large number of federal agencies, responsible for handling major emergency events, have currently adopted use of the Integrated Emergency Management System; Federal Emergency Management Agency, National Fire Academy, Environmental Protection Agency, United States Coast Guard and OSHA for Hazardous Materials responses to name a few (NYSEMO, 2002).

Another major advantage of using the Integrated Emergency Management System for Emergency Operation Center activities is that it is an “all hazard-all risk” approach to managing crisis response operations as well as all types of non-crisis events. As such there is no need for separate command structures for differing events (Coast Guard, 2002). A direct connection to this advantage is the fact that the Integrated Emergency Management System is modular, meaning the command and staff and other functions of the system are available to be filled if and when tasks need attention (Terwilliger, 2002). All positions are not required to be filled during Emergency Operation Center activations. This allows the system to be easily expandable, not static, as the incident expands (Goldfarb, 1997).

The information found in this section clearly explains why an Integrated Emergency Management System should be adopted in Westchester County. This research is the overall basis

for justifying, to the Westchester County Executive, the positive impact of a dedicated emergency management system designed to prepare government to handle anticipated and unforeseen disasters in a more unified and organized manner. It is made clear to the researcher, through the review of the research information, that there are many positive aspects of using an Integrated Emergency Management System. These positive findings show how confusion amongst decision makers in an Emergency Operations Center operation can be reduced. These findings also allow for the researcher to move forward with identifying training courses and designing a training schedule for Westchester County Emergency Operations Center responders.

Training Programs and Their Importance for Responders to Emergency Operations

Centers in an Integrated Emergency Management System

“Training is the single most important element in having an effective Emergency Operations Center. It has been shown time and time again that in a disaster people remember what they practiced rather than what they’ve read” (Serina & Coleman, 1997, p. 93). Noted by Assistant Chief Patrick McCormick (1997, p.20-21), “Emergency Services must adequately prepare to cope with natural and manmade disasters. Education and training are essential, encompassing mitigation, preparedness, response and recovery for every type of disaster identified in the plan”.

Who should be in the 21st century Emergency Operations Center? Highly trained personnel who understand their roles and responsibilities are key personnel in today’s Emergency Operations Center. These participants should be cross trained and able to fill different roles during Emergency Operations Center activations (Serina & Coleman, 1997). All officers need an absolute knowledge of the incident management system and good, honest communications with realistic tabletop exercises and drills can provide this education (Chiaramonte, 2002). This training needs to be conducted on a regular basis using various forms ranging from basic

orientations to full-scale exercises. Due to governmental downsizing, reorganizing, early retirements, and the primary Emergency Operations Center responders being part of the emergency ample alternates must also be trained to serve in the Emergency Operations Center (Serina & Coleman, 1997).

Integrated Emergency Management System and Incident Command are shown as toolboxes that are adaptable, modular and expandable in design to handle all types of emergencies. Players in these systems must be familiar with this toolbox and must develop a comfortable working relationship with the tools in them. Training, mentoring, and on-the-job training experiences will provide this familiarity. Integrated Emergency Management System must become second nature to responders to be successful (Smith, 1997).

This education and training must be comprehensive and broad based that includes college level courses in emergency preparedness and management (McCormick, 1997). To accomplish this training there are a number of resources available with some listed below (Adams, 2002):

1. The Federal government, through the Federal Emergency Management Agency, offers over two dozen home study programs in all variety of subjects in Emergency Management.
2. The National Fire Academy offers both on campus and home study programs.
3. Many local colleges and universities offer courses in Emergency Management and a number now offer degrees.
4. The American Civil Defense Association offers a wide range of resources in virtually every type of emergency.
5. Professional societies can also be assets in crisis management in their field of expertise.

6. State Emergency Management offices provide training courses in Crisis and Emergency Management.

A listing of specific web sites that offer these training and educational opportunities can be found in Appendix B.

The findings obtained by the researcher while exploring training options available for educating Emergency Operations Center responders in an Integrated Emergency Management System are the basis of the curriculum described in Appendix A. These findings also reinforced the importance of and need for training in the implementation of such a new emergency management plan in Westchester County.

PROCEDURES

Definition of Terms

Emergency Operations Center. An Emergency Operations Center is a centralized, secure location where the coordination of major events involving a multi-agency/jurisdiction response takes place.

Limitations

Once this research project began the researcher discovered one major limiting factor over which the researcher had little or no control, the scarce amount of documented material addressing an Integrated Emergency Management System. Emergency Management as a science is a fairly new field and as such the literature available for review was extremely limited in scope. Most of the information found dealt with on scene Incident Command Systems put in place by emergency responders. These Incident Command Systems, for the most part, ignored the role Emergency Management and Emergency Operations Center operations play in dictating

the outcome or supporting an emergency events. Other information was outdated, dealing with old “Civil Defense” strategies in handling large-scale emergencies.

Research Methodology

The researcher, upon beginning research for this project, first rechecked the problem statement for clarity and comprehensiveness. The problem, the lack of the use of a formal Integrated Emergency Management System for Emergency Operations Center activations in Westchester County New York often creates confusion among decision makers, is found to be clearly stated. The problem is also found to be sufficient enough to allow for replication by other elected officials, emergency management, and emergency operations personnel who are responsible for Emergency Operations Center operations during large-scale events. This replication can be accomplished by comparing their current Emergency Management System used in Emergency Operations Center operations with the Integrated Emergency Management System findings in this study.

The purpose of this Applied Research Project is to identify and justify the use of a formal Integrated Emergency Management System to be used, select training courses, and develop a schedule to train key responders to the Westchester County Emergency Operations Center during activation. The purpose is addressed through a two-pronged approach. First, extensive research is conducted to explain the key components and phases that make up an Integrated Emergency Management System and to explore the importance and advantages of implementing such a system. Then, once the first phase is completed, training programs are identified and their importance explained in addressing the purpose of the Applied Research Paper. From the identification of training opportunities a schedule of courses and a proper training curriculum is designed to educate Emergency Operations Center responders.

A situational analysis is not found to be necessary in this project.

Priorities are then set and objectives established that allow the researcher to analyze the stated problem. The first priority is to research and understand the key components and distinct phases that make up an Integrated Emergency Management System. This knowledge will allow the researcher to determine if any of these components or phases are currently in place in Westchester County Emergency Operations Center activities. Future training curriculums will be based on the current levels of understanding and participation in an Integrated Emergency Management System by Emergency Operations Center responders in Westchester County. This knowledge will be obtained through current literary research and is stated in this document.

The second priority is to conduct additional literature review to compile information on the importance and advantages of implementing an Integrated Emergency Management System. Researching appropriate and available training programs related to an Integrated Emergency Management System makes up the third step in this research process. This research centered around both literature reviews as well as research on the Internet. The results of this research can be found in Appendix B. Finally, a plan is developed, based on these findings, which identifies training courses and lays out a schedule to follow in order to accomplish this training. This plan is found in Appendix A.

Once formulated, this plan is implemented and monitored to ensure the necessary research is completed and the results are put together in a timely manner.

The outcomes of this process are evaluated and provide the basis for the recommendations set forth in this Applied Research Paper.

RESULTS

The recommended training courses and formal training schedule required to be presented to key responders to Emergency Operations Center activations on the use of an Integrated Emergency Management System in Westchester County is presented in Appendix A.

Answers to Research Questions

Research Question 1. There are many key components and phases that make up an Integrated Emergency Management System. Walter & Buck (1996) identify thirteen processes that make up the components of an Integrated Emergency Management System. The first seven; Hazard Analysis, Capability, Assessment, Emergency Operations Planning, Capability Maintenance, Mitigation Efforts, Emergency Operations and Evaluations focus on current capabilities. The last six; Capability Shortfalls, Multi-Year Development Plan, Annual Development Increments, State and Local Resources, Federal Resources and Annual Work Increments emphasize capability improvements.

The four phases of Emergency Management; Mitigation, Preparedness, Response and Recovery are implemented through the use of the thirteen processes identified in the components of an Integrated Emergency Management System (Meyer, 1997). Therefore, there is a direct relationship between the thirteen components of an Integrated Emergency Management System and the four phases of Emergency Management.

Research Question 2. Using an Integrated Emergency Management System is very important and has many advantages in Emergency Operation Center activations. First, using this system is important to Emergency Operations Center operations since there is a growing need for responders from multi-agencies to operate under a single standard for managing incidents. In major events many local, state, and federal agencies will need to come together. The challenge is

to get these agencies to cooperate and work together to bring about a successful outcome (NYSEMO, 2002). The official use of the Integrated Emergency Management System is also important because it is designed to develop and maintain emergency management capabilities nationwide. Therefore, it will bring multi-agencies together, when used in Emergency Operations Center operations, representing a management philosophy advocating an emergency management plan involving all agencies at all levels of government (Meyer, 1997). Using a system that is logical and applicable to all jurisdictions regardless of size, level of sophistication, potential hazards, or current capabilities, as is the Integrated Emergency Management System, is another important feature of the system. Finally, the Integrated Emergency Management System is a realistic way to conduct needs assessments and form program plans for all types of emergencies or hazards (McCormick, 1997).

Once the importance of using an Integrated Emergency Management System is explained, advantages of using this system are important to identify in order to justify the implementation of an Integrated Emergency Management System in Westchester County. This formal emergency management system is a management tool that can help prevent injuries, reduce property damage, and save lives by effectively incorporating resources from private and public agencies needed to mitigate the incident (Walter & Buck, 1996).

Other advantages of using the Integrated Emergency Management System is its use of common terminology and unified command among key managers, the fact the system limits the span of control within functional areas, and this system provides organizational flexibility while incorporating a high level of accountability among managers (NYSEMO, 2002). With this flexibility comes ease of expansion as the incident escalates meaning not all positions are required to be filled for all Emergency Operations Center activations (Goldfarb, 1997).

The Integrated Emergency Management System is an “all hazard-all risk” approach to managing all emergencies and events that is advantageous in that only one system is needed for all events. Also, being a public domain system, the system is cost effective since it can be legally copied and used across agency lines (Coast Guard, 2002).

Research Question 3. There are many training opportunities for the implementation of a formal Integrated Emergency Management System. However, the importance of such training programs in an Integrated Emergency Management System needs to be identified in order to institute such a system in Emergency Operations Center operations. Serina & Coleman (1997, p.93) state, “Training is the single most important element in having an effective Emergency Operations Center. It has been shown time and time again that in a disaster people remember what they practiced rather than what they’ve read”. Training and education activities are essential and must encompass the four phases of Emergency Management for every type of hazard (McCormick, 1997). Due to governmental downsizing, reorganizing, early retirements, and the fact that primary responders may be part of the emergency and not able to respond alternates must be identified and also cross trained (Serina & Coleman, 1997). This training must include honest communications with realistic tabletop exercises and drills (Chiaramonte, 2002).

All education and training must be comprehensive and broad based that includes college level courses in emergency preparedness and management (McCormick, 1997). Training opportunities through numerous agencies and organizations listed below are identified by Shawn Adams (2002):

1. Federal government through the Federal Emergency Management Agency
2. National Fire Academy
3. Local colleges and universities

4. The American Civil Defense Association
5. Professional societies and organizations
6. State Emergency Management agencies

A listing of specific web sites that offer these training and educational opportunities can be found in Appendix B.

In performing the research for this project the researcher did not discover unexpected findings that contradicted the need for the implementation of an Integrated Emergency Management System in Westchester County New York.

DISCUSSION

The researcher was able to perform research to answer the research questions as stated in the project. In answering these questions the researcher discovered sufficient information to justify the implementation of an Integrated Emergency Management System to manage disasters of all types.

The researcher set out to identify key parts and components that make up an Integrated Emergency Management System and through his action research discovered that there are indeed a number of key components and phases to such a system. According to Walter & Buck (1996) an Integrated Emergency Management System is a collection of key components designed to emphasize capability development. These components are divided into two distinct sections; current capabilities and activities and capability improvement steps. These two sections of the Integrated Emergency Management System are broken into thirteen specific processes, of which the first seven pertain to current capabilities; perform a *Hazard Analysis*, prepare a *Capability Assessment* program, develop *Emergency Operations Planning*, institute a *Capability Maintenance* program, undertake *Mitigation Efforts* as needed, perform *Emergency Operations*

functions and develop, and institute an *Evaluation* process that looks at these first seven processes (Walter & Buck, 1996). The researcher agrees with these steps and some are being used on a limited basis in Westchester County. However, for this system to be beneficial a complete look at current county capabilities must be undertaken prior to moving to Phase II.

Phase II emphasizes capability improvements, the last six processes in the overall thirteen step process; exploring *Capability Shortfalls*, developing a *Multi-Year Development Plan*, laying out an *Annual Development Increment* plan, identifying both *State and Federal Resources* needed, and finally developing an *Annual Work Increment* plan. These 13 processes are required for the entire system to operate efficiently (Walter & Buck, 1996). Chief Steve Meyer (1997) compares this entire Integrated Emergency Management System to a chain where the system as a whole is only as strong as its weakest link. Skipping a process or step means the system will not perform as expected when called upon. Here, in Phase II, is where Emergency Management in Westchester County is deficient. More emphasis on each of these identified steps must take place in the implementation of an Integrated Emergency Management System for Emergency Operations Center operations.

These thirteen processes are the tools needed to work within the four phases of Emergency Management; Mitigation, Preparation, Response and Recovery (Meyer, 1997). Shawn Adams (2002) relates the first of these phases, *Mitigation*, to any risk management program. Here, states Adams, is where efforts are specifically focused on minimizing or preventing the loss from a catastrophic event. This action can prevent, alleviate or diminish the potential effect of a disaster and is one of the most cost-effective ways to deal with disasters. The pain from such devastating losses that occur in disasters can be minimized when Emergency

Managers understand their potential severity and work to eliminate or reduce this severity prior to it happening (Meyer, 1997).

Phase two in Emergency Management is *Preparation*. This phase is described by Chief Meyer (1997, p. 54) as, “the backbone of any and all successfully managed disasters”. He goes on to say that managers must be able to reduce the threat or severities of the hazard not just have well trained responders with the necessary equipment to handle hazards. An example of this phase, used by Shawn Adams (2002), is the preparation by major employers in the aftermath of the World Trade Center tragedy on September 11, 2002. Shawn points out that many companies have identified the risk associated with having all their top executives in one location and the tragic affect it can have on a company should a major disaster occur. This preparing for the unthinkable, as Adams put it, takes place after the mitigation phase and is an important step in preparation that may not have been given much attention in the past.

Response is the action of providing assistance to the injured, reducing the probability of secondary damage and undertaking speedy recovery operations and constitutes the third phase in Emergency Management. When a disaster occurs, preparation ends and plans are put in place as response takes over (Adams, 2002).

The major focus of the final phase, *Recovery*, is not on cost as in the first two phases but on the underlying wish that more could have been done (Adams, 2002).

These components and phases make up an Integrated Emergency Management System. They allow for the development of a system to handle emergencies and disasters in a logical and orderly manner. The researcher agrees with these phases and believes that the preparation and mitigation phases are the first ones that need to be identified and improved upon in the typical

emergency response profile. Response is the strong suit for Emergency Services personnel with little proactive thought given to the other phases.

An Integrated Emergency Management System is important and has many advantages when used by Emergency Managers in Emergency Operations Center operations. The researcher agrees with all the findings in their importance and advantages in managing emergency and hazardous events through an Emergency Operations Center operation.

First, the importance of using a dedicated system in emergency management is obvious to the researcher. Incident management in today's emergency response climate has become very complex. There is a growing need for multi-agency, multi-functional involvement in large-scale incidents demanding the use of a single standard for managing these incidents (NYSEMO, 2002). This type of multi-agency coordination is not a familiar concept to all private health and welfare agencies nor is it familiar to many municipal emergency organizations (McCormick, 1997). In the past these groups have had incomplete or unrealistic goals and have not cooperated in emergency planning as a group. For this very reason past attempts at disaster planning and mitigation have failed, according to Assistant Chief Mike McCormick. However, the challenge is to get these agencies and organizations to cooperate and work together to bring about a successful outcome (NYSEMO, 2002).

The use of an Integrated Emergency Management System is a first important step towards working together (Walter & Buck, 1996). In the wake of the September 11, 2001 events the Federal government has placed more emphasis on unified command (Chiaramonte, 2002). A dedicated Incident Command/Management System, according to Chief Michael Terwilliger (2002), is a system that allows one manager or management team to manage the risk with a great deal more accountability. The Integrated Emergency Management System is a, "management

philosophy that advocates the use of a comprehensive emergency management plan involving all agencies and organizations at all levels of government” (Walter & Buck, 1996). Having experienced the response to New York City during the World Trade Towers event first hand this researcher whole heartedly agrees with the concept of one manager using a unified command in dealing with a multiple agency response. The researcher personally discovered that not having such a system in place at the time of the World Trade Towers event made mutual aid coordination extremely difficult.

Another important concept associated with an Integrated Emergency Management System is that the process is logical and applicable to all jurisdictions regardless of size, level of sophistication, potential hazards or current capabilities (Walter & Buck, 1996).

Information, the ability to process it, the relationships in a multi-person communication network, and the authority to structure, control and, regulate information across an emergency command affects the total effectiveness of the entire response system. It is important to use an Integrated Emergency Management System in Emergency Operations Center activities because the system allows for the handling of all types of communications and information (Wybo & Kowalski, 1998).

The researcher found many advantages to using and Integrated Emergency Management System in Emergency Operations Center operations. First, this tool can assist in managing emergencies to prevent injuries, reduce property damage, and save lives in a community. The system also provides a means of effectively incorporating resources from both private and public agencies needed in the mitigation and response phases of emergency management (Walter & Buck, 1996). Planners can, using the Integrated Emergency Management System, combine this

system with their disaster planning to predict disaster effects and develop proper responses that can be handled through the Emergency Operations Center (McCormick, 1997).

An Integrated Emergency Management System allows for a unified command, uses common terminology, limits span of control, and provides organizational flexibility while incorporating a high level of accountability for decision making (NYSEMO, 2002). These advantages of using a structured system also allow for the organization and control of large numbers of responders from many organizations and agencies (Meyer, 1997). The use of such a system is also very cost effective since it is a public domain system and can be freely used by agencies thus eliminating the effort and cost of designing, testing, and implementing individual systems (Coast Guard, 2002). Many agencies have taken advantage of the “free domain” feature of the Integrated Emergency Management System and currently use it in handling their large-scale disasters. These agencies include Federal Emergency Management Agency, National Fire Academy, Environmental Protection Agency, United States Coast Guard and OSHA for Hazardous Materials responses to name a few (NYSEMO, 2002).

Finally, one of the more important advantages of the Integrated Emergency Management System is that it is an “all hazard-all risk” approach to managing crisis, as well as non-crisis, events eliminating the need for separate emergency management systems to handle emergencies (Coast Guard, 2002). This approach is highly flexible in its design which allows command to fill functions of the system as needed (Terwilliger, 2002). All positions do not need to be filled at once during Emergency Operations Center operations. This allows for an expandable, not static, system of command as the incident dictates (Goldfarb, 1997).

The researcher found that there are many training programs available to successfully educate Emergency Operations Center responders on the use of an Integrated Emergency

Management System. However, the importance of this training must be imparted to these responders prior to undertaking a formal program. Serina & Coleman (1997, p. 93) state, “training is the single most important element in having an effective Emergency Operations Center”. They go on to state that people retain practiced information over information that was simply read. Assistant Chief Patrick McCormick (1997) agrees that emphasizing education and training is essential for all types of disasters identified in the planning process. This training, according to McCormick, must encompass all four phases of Emergency Management if Emergency Services is to prepare to cope with manmade and natural disasters.

Highly cross-trained personnel, who understand their roles and responsibilities, are the key responders to today’s 21st century Emergency Operations Center operations. These responders must be trained to fill different roles in handling all types of emergencies in an Emergency Operations Center (Serina & Coleman, 1997). This training must be conducted on a regular basis, according to Sirena & Coleman, using various forms of training ranging from orientations to full-scale exercises. They go on to say that key responders and ample alternates must be included in this training to deal with today’s change in primary responders due to governmental downsizing and reorganizations, early retirements, and the fact that the primary respondent may be part of the disaster.

Formal training, mentoring, and on-the-job experiences provide familiarity with the management tools that are ever present in the “tool boxes” of information provided through training in the use of an Integrated Emergency Management System. These tool boxes are shown to be adaptable, modular, and expandable to handle all types of emergencies. Therefore, players must be trained in the use of and become familiar with these tools in the Integrated Emergency

Management System. These tools must become second nature to Emergency Operations Center responders to be successful (Smith, 1997).

This education and training must be comprehensive and broad based that includes college level courses in emergency preparedness and management (McCormick, 1997). To accomplish this training there are a number of resources available with some listed below (Adams, 2002):

1. The Federal government, through the Federal Emergency Management Agency, offers over two dozen home study programs in all variety of subjects in Emergency Management.
2. The National Fire Academy offers both on campus and home study programs.
3. Many local colleges and universities offer courses in Emergency Management and a number now offer degrees.
4. The American Civil Defense Association offers a wide range of resources in virtually every type of emergency.
5. Professional societies can also be assets in crisis management in their field of expertise.
6. State Emergency Management offices provide training courses in Crisis and Emergency Management.

A listing of specific web sites that offer these training and educational opportunities can be found in Appendix B.

RECOMMENDATIONS

Throughout this report the importance and advantages of implementing an Integrated Emergency Management System in Westchester County have been identified. Key components of such a system and the necessary phases of Emergency Management have also been identified to form a basis for this system's implementation. However, Westchester County Emergency

Management and Emergency Operations Center activities still have not recognized the overall importance, in the handling of large-scale emergencies, of an Integrated Emergency Management System.

Delaying the implementation of an Integrated Emergency Management System only allows the existing confusion among decision makers in an Emergency Operations Center operation to continue. It was seen in the September 11, 2001 events that confusion in New York City caused a delay in the implementation of effective response plans. It has also been seen through other current terrorist events around the world that each community must be prepared to handle any and all types of emergencies on a moments notice since it is not known where the next event will occur. To this end it is recommended that Westchester County adopt the formal Integrated Emergency Management System for use in Emergency Management and Emergency Operations Center operations. A plan is described in Appendix A for the training of key responders to the Westchester County Emergency Operations Center in the application and use of an Integrated Emergency Management System. It is the hope of this researcher that this recommended Integrated Emergency Management System and associated training program be supported by the Westchester County Executive and adopted for use in Emergency Operations Center activities.

Future readers of this report should review its recommendations and findings and expand and apply them to their own Emergency Management operations. Emergency Management systems throughout the country and world should be studied, new training programs taken advantage of, and in the end an appropriate Integrated Emergency Management System adopted for implementation within their own jurisdiction.

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APPENDIX A

COURSES OF STUDY and TRAINING SCHEDULE

Initial Training (At Westchester County Training Center, Valhalla, NY)

Course of Study Provided by NY State Emergency Management Organization
(Course descriptions found at www.nysemo.state.ny.us/TrainingHome.htm)

Incident Command for Executives (I-402)	February	2003
Principles of Emergency Management (G-230)	March	2003
Incident Command System Orientation (I-100)	May	2003
Incident Command System Basic (I-200)	July	2003
Leadership and Influence (G-240)	September	2003
Health Emergency Incident Command System (HEICS) Designed for Health Department personnel	As Requested	
Public Safety Critical Incident Management (PCIMS) Designed for Public Safety personnel	As Requested	

Independent Study Courses (On-line)

Courses of Study Provided by Emergency Management Institute (FEMA)
(Course descriptions found at www.fema.gov/emiweb/crslist.htm)

EOC's Role in Community Preparedness, Response and Recovery (IS-275)	Spring	2003
The Professional in Emergency Management (IS-513)	Spring	2003
Emergency Preparedness – USA (IS-2)	Spring	2003
Radiological Emergency Management (IS-3)	Spring	2003

Courses at the Emergency Management Institute – Emmitsburg, Maryland
(Course descriptions found at www.fema.gov/emiweb/iemc.htm)

Integrated Emergency Management Course (For Emergency Management personnel initially)	Apply Spring 2003	
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APPENDIX B

TRAINING RESOURCES

All Hands Emergency Management
Consulting & Training Services
<http://allhandsconsulting.com>

Disaster Recovery Institute
<http://www.drii.org>

Emergency Management Institute
(Federal Emergency Management Institute)
<http://training.fema.gov>
<http://training.fema.gov/emiweb.htm>

Federal Emergency Management Agency
<http://www.fema.gov/library/femainfo.shtm>
http://www.fema.gov/tab_education.shtm

Independent Course Study List
<http://training.fema.gov/emiweb/crslist.htm>

International Association of Emergency Managers
<http://www.iaem.com>

New York State Emergency Management Office
Training Section
<http://www.nysemo.ny.us/TrainingHome.htm>

North American Emergency Management
<http://www.naem.com>

State Emergency Management Offices
http://www.usfa.fema.gov/dhtml/fire-service/st_pocs.cfm

The American Civil Defense Association
<http://www.tacda.org>